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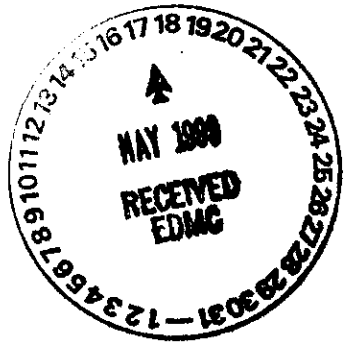

SUBJECT: 303-K Storage Facility Closure

Summary:

- The 303-K Sample and Analysis Plan required by the Hanford Site Wide Permit recognizes uranium as a 'constituent of concern' and requires a metal analysis to determine toxicity levels.
- The 303-K Closure Plan requires that MTCA Level B cleanup values be met for any contaminant of concern in order for the unit to be clean closed.
- According to the 303-K Closure plan, the 303-K TSD will not be closed until any cleanup deferred to CERCLA is completed.
- Ecology is not regulating uranium as a radioactive contaminant but is regulating uranium as a waste constituent for its toxicity.
- The TPA specifically calls out that radioactive constituents will be a part of TSD closures.
- The DOE data validation process and their certified professional engineer did not identify the problems associated with DOE's failure to complete the required Sample and Analysis Plan.

Recommendations

The portion of "clean closure" certification submitted by letter dated September 1, 1998 cannot be accepted by Ecology as neither the Hanford Permit conditions nor the SAP were fulfilled. Therefore, it is recommended that USDOE be given the choice to either decontaminate and/or remove to achieve a RCRA "clean closure" followed by clean closure verification sampling or to submit a post-closure permit application. It is also recommended that Ecology clearly communicate a requirement to satisfy WAC 173-303-610 performance standards with regard to cleanup standards for uranium as specified by applicable MTCA level B values.

Current Administrative Path

The 303-K Storage Facility Closure Plan (Document DOE/RL-90-04, Revision 2A) was approved by Ecology in 1997 via Modification C of the Hanford Site RCRA permit. Chapter 6.0 of the Closure Plan addresses closure strategy and performance standards. Specifically, the following (lines 39-44 of page 6-1, Section 6.1 "Closure Strategy") are applicable:

> If dangerous constituents are identified in the soil in concentrations above action levels, closure for the soil will take place during the remediation of the 300-FF-3* operable unit under the CERCLA remedial action process. Soils that would be considered an imminent hazard would be remediated as specified by the Hanford Federal Facility Agreement (Ecology, et al., 1990) Action Plan Section 7.2.3.

The following 303-K Closure Plan text (lines 1-2 of page 6-3, Section 6.2 "General Closure Approach") is also applicable:

> Soil remediation, if required, will be accomplished under the CERCLA remedial action process.

The following 303-K Closure Plan text (lines 34-38 of page 7-1, Section 7.2 "Facility Sampling") is also applicable:

> A flowchart for sampling activities is provided in Figure 7-1. The 303-K Storage Facility is regulated by WAC 173-303, but located within a CERCLA operable unit. Because the 303-K Storage Facility is located in a CERCLA operable unit (300-FF-3*), any soil remediation will be accomplished under the CERCLA remedial action process.

A copy of the waste sampling and analysis flowchart referenced immediately above may be found as an attachment to this memorandum. The following 303-K Closure Plan text (lines 32-40 of page 8-2, Section 8.3 "Postclosure Care") is also applicable:

> With the exception of an imminent health threat, all soil remediation will take place under the CERCLA remedial action process. If the soil within the 303-K Storage Facility boundary is found to be contaminated (chemical concentrations above local background threshold and health-based standards) from operations conducted (chemicals used or waste stored) in the 303-K Storage Facility, the 303-K Storage Facility will not be considered closed until the remediation under CERCLA is complete.

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During the time between closure of the building, floor, and pads and any soil remediation under CERCLA, steps will be taken to isolate any contamination.

The following 303-K Closure Plan text (lines 42-46 of page 8-2, Section 8.3 "Postclosure Care") is also applicable:

> Any data obtained from sampling and analyses during closure activities will be part of the record and included in the closure plan. These data will be taken into account and used during the CERCLA evaluation of the 300-FF-3* operable unit, as well as data collected specifically for the CERCLA evaluation.

The following 303-K Closure Plan text (lines 7-12 of page 8-3, Section 8.3 "Postclosure Care") is also applicable:

> During the period between closure of the building and soil remediation under CERCLA, the closure area would be inspected at a minimum of once a week. This inspection would be combined with inspections presently conducted. The inspections would determine the need for maintenance of any temporary covers or other physical barriers. Trained personnel would perform any required maintenance.

The following Hanford Site RCRA permit conditions (Permit Conditions V.14.B.f as amended in Modification C) is also applicable:

> V.14.B.b. The results of all sampling required by the Plan shall be provided to the Department. This submittal shall include raw analytical data, a summary of analytical results, a data validation package, and a narrative summary of conclusions.
>
> V.14.B.c. The Department shall be provided, for review and approval, a sampling and analysis plan and date of sampling for any sampling event not addressed in the Plan, which provides data used to support the 303-K cleanup activities at least 30 days prior to initiating actual sampling activities. The results of this sampling shall be submitted to the Department. These submittals shall include the raw analytical data, a summary of analytical results, a data validation package, and a narrative summary of conclusions.

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> V.14.B.d. The Permittees shall notify the Department, in writing, if action levels cited in Section 6.1 of the Plan are exceeded. The notification shall include a request for Ecology's approval of alternative action levels or identify interim measures to be taken in the 303-K until closure activities are performed in conjunction with the 300-FF-3* Operable Unit. The interim measures must be approved by the Department.
>
> V.14.B.h. **If any analytical result, except for arsenic and beryllium, for any sample location specified in the Sampling and Analysis Plan exceeds the MTCA Method B cleanup level, then characterization of the lateral and vertical extent of the contamination shall be required and the Department shall pursue corrective action for this TSD unit.**

The following Hanford Site RCRA permit condition (Permit Condition V.14.B.f as amended in Modification D) is also applicable:

> V.14.B.f. Due to lack of federal funding in 1998, the allowed time for closure of 303-K is hereby extended in accordance with WAC 173-303-610(4)(b)(I) and 173-303-815(3). The Permittees shall submit a certification of closure for 303-K no later than September 30, 2001. In addition, the Permittees shall submit to the Department at least two reports of progress toward completion of closure (i.e., budgeting for building demolition, obtaining sufficient funding, scheduling the physical work). The first report shall be submitted no later than **September 30, 1999**, and the second shall be submitted no later than **September 30, 2000**.

It should be noted that although permit condition V.14.B.f was modified during the recent Hanford Site RCRA Permit Modification D, DOE did not request any change to any other permit condition. Specifically, DOE did not communicate any need to revise permit conditions V.14.B.a, V.14.B.b, V.14.B.c, or V.14.B.d.

Clearly, the regulatory intent of the permit writer and technical support was to coordinate or integrate the 303-K Storage Facility RCRA closure with the remediation activities of the 300-FF-3* CERCLA operable unit to meet all applicable waste constituent clean closure performance standards. In addition, the above cited text clearly identifies a RCRA post-closure status will be maintained until such time as the RCRA TSD soils are remediated via 300-FF-3* CERCLA actions. Again, the remediation of 303-K Storage Facility closure has been coordinated or integrated with the 300-FF-3* operable unit

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remediation actions. It should be noted that the coordinated or integrated closure approach described in the approved closure plan has the concurrence of the Lead Regulator for the CERCLA operable unit in which 303-K resides.

From here, there are three administrative paths that may occur as provided by the existing permit conditions and/or the WAC 173-303.

1) The clean closure certification can be accepted, if all permit conditions have been satisfied (including implementation of the Hanford Permit conditions and approved Sampling and Analysis Plan);
2) Post-closure care and maintenance of the interim status non-clean-closed unit may continue as prescribed by the approved closure plan (Chapter 8) and applicable permit conditions;
3) Interim status may be terminated and a post-closure permit may be issued (via modification of the Hanford Site permit).

Note: Hanford Permit Condition V.14.B.h (see copied portion above) requires a characterization defining the lateral and vertical extent of contamination to be performed.

Uranium

For clarification, DOE's complex-wide and 303-K-specific positions on uranium are hereby offered as the following:

> The uranium at a DOE site is a 'source, special nuclear, or by-product material' regulated by the *Atomic Energy Act of 1954* (AEA). The *Resource Conservation and Recovery Act of 1976* [261.4(a)(4)] specifically excludes source, special nuclear, or by-product material from being a solid waste. DOE has not delegated authority over source, special nuclear, or by-product material to the state of Washington.
>
> Uranium does not need to be addressed during the closure of the 303-K Storage Facility TSD Unit Closure.
>
> Uranium is addressed in the CERCLA cleanup of the 300 Area soils and buildings.

Ecology's consistent position has been that Ecology is not regulating the "source, special nuclear, or by-product material" that DOE is managing as waste. Furthermore, Ecology's position is that once the uranium is present in media, in this case the soil of 303-K, the uranium is contamination and is subject to cleanup. Ultimately, it is immaterial whether the authority for the remedial activities comes from (a) the closure requirements of WAC 173-303 which invoke the cleanup standards of WAC 173-340 or (b) the Hanford Federal Facility Agreement and Consent Order as implemented by the Action Plan. The Action Plan states, **"The TSD units containing mixed waste will**

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normally be closed with consideration of all hazardous substances, which includes radioactive constituents [Section 6.3]." The Action Plan continues by describing that the lead regulatory agency determines the demonstration of clean closure of the TSD unit [Section 6.3.1] and that, if clean closure cannot be achieved, the TSD unit will be addressed as a land disposal unit and **"In order to avoid duplication under CERCLA for mixed waste, the radionuclide component of the waste will be addressed as part of the closure action [Section 6.3.2]"**.

It should be noted that in the 200 Area, several TSD units were granted clean closures without regard to **all applicable waste constituents for which toxicity and/or carcinogenicity WAC 173-303-610 performance standards exist.** Our primary concern is that without maintaining RCRA regulatory authority, as allowed by WAC 173-303-610 and the TPA, all contamination will not be addressed. It is our understanding that the DOE Environmental Restoration Program and its Environmental Restoration Contractor have assumed that these former TSD unit areas are not contaminated and have not investigated or planned to investigate or remediate for waste constituents presumed not to be associated with the TSD unit operations (and therefore not included in the respective closure). It should also be noted that Ecology has acted to address **all applicable waste constituents for which toxicity and/or carcinogenicity WAC 173-303-610 performance standards exist** in the 300 Area. For example, by requiring the polychlorinated biphenyl (PCB) contamination at the 3718-F TSD unit to be cleaned up before a clean closure certification was approved all applicable waste constituents identified by WAC performance standards were addressed.

Of particular importance and applicability, metallic uranium was a constituent of concern clearly identified in the 303-K Storage Facility Sampling and Analysis Plan (SAP). Specifically, on page 4, lines 31-43 identify uranium as a metal constituent of concern. Furthermore, the analytical method for analysis of uranium is repeatedly identified throughout the SAP as laser kinetic phosphorimetric analysis (LKPA) (Table 5 page 20, page A-3, page A-5, page A-8, etc.). A validated data package for the 303-K Storage Facility sampling event of October 29 and 30, 1998 indicates radiochemistry analyses were performed. **Specifically, uranium isotopic analysis was performed rather than the required LKPA.** On March 15, LAS Laboratories, Inc. was contacted to confirm what analytical method was used for measurement of uranium. It was explained that a spectroscopic method was used rather than LKPA. In addition, the chain of custody that accompanied the samples did not specify an analytical method. It is Ecology's understanding that on the morning of the sampling event (October 29, 1997), the field technicians acknowledged that they had not seen the SAP ERRATA sheet (i.e., the Hanford Permit approved SAP changes which occur as Attachment 39 to the Hanford Permit). It should also be noted that the problems associated with the sampling results for the 303-K unit were not identified either in DOE's data validation report or in the data evaluation by the Professional Engineering (PE) certifying clean closure for the unit. DOE did not followed the SAP agreed upon by the various parties and required by the portion of the Hanford Site Wide Permit associated with the 303-K facility. Therefore, DOE's "clean closure" certification (see September 1, 1998 letter

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from James Rasmussen to Laura Cusack regarding "Transmittal of the 303-K Storage Facility Fiscal Year (FY) 1998 Closure Activities Report and the Professional Engineer's (PE) Certification Supporting the FY 1998 Closure Activities (S-3-1)") is incorrect and cannot be accepted.

It should also be noted that at this time, the Hanford Permit requires certification of closure to be received by September 30, 2001. The closure schedule was modified to this date because USDOE and its contractors had not budgeted or planned funds for demolition of the structure. The Permittees prepared cost estimates that clearly demonstrated demolition without any interim actions as the most cost-effective approach. Because the responsible USDOE program has no mission for the building, demolition of the structure is planned. At the time the decision to demolish the building was agreed upon, Ecology also agreed to decrease the required periodic inspections of the TSD unit to annually, unless an event such as flood, high snowmelt, or torrential rains occurred. In the case of such an event, an immediate inspection would be required with a report to Ecology. The request was made in the October Project Managers' meeting, but has not been formalized by permit conditions or a revised closure plan describing the post-closure maintenance requirements. It is our understanding that USDOE objects to maintaining interim status due to onerous administrative requirements such as inspections.

From here, there are at least two administrative paths that may occur as provided by the existing permit conditions.

1) USDOE can be formally notified that the approved SAP and accompanying Hanford Permit conditions were not satisfied. With such notification, this portion of clean closure certification can be rejected on condition that the permit conditions (i.e., the SAP) were not fulfilled. Furthermore, USDOE can be given the choice to either decontaminate and/or remove to achieve a RCRA "clean closure" or to submit a post-closure permit application. In either path, modification of the Hanford Permit would be required.

2) USDOE can be formally notified that the approved SAP and accompanying Hanford Permit conditions were not satisfied. With such notification, this portion of clean closure certification can be rejected and USDOE can be formally notified that the approved SAP and accompanying Hanford Permit conditions were not satisfied. With such notification, enforcement action may be taken for non-compliance with Hanford Permit conditions.

Recommendations

The portion of "clean closure" certification submitted by letter dated September 1, 1998 cannot be accepted by Ecology as neither the Hanford Permit conditions nor the SAP were fulfilled. Therefore, it is recommended that USDOE be given the choice to either decontaminate and/or remove to achieve a RCRA "clean closure" followed by clean closure verification sampling or to submit a post-closure permit application. It is also

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recommended that Ecology clearly communicate a requirement to satisfy WAC 173-303-610 performance standards with regard to cleanup standards for uranium as specified by applicable MTCA level B values.

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